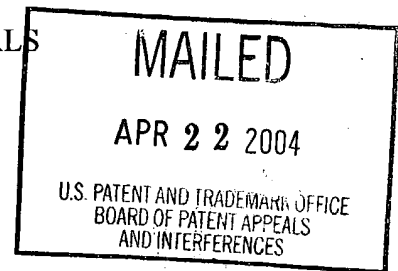


The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

*Ex parte* WILLIAM M. APPLEMAN  
and LAWRENCE P. MURPHY



Appeal No. 2004-0936  
Application 09/879,870

ON BRIEF

Before KIMLIN, GARRIS and WARREN, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

*Decision on Appeal*

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner finally rejecting claims 2 and 3, which are all of the claims in the application. Claim 2, copied from the appendix to appellants' brief, is illustrative of the claims on appeal:

2. In combination with a housing of a module enclosing a plurality of elongated processing elements through which a contaminate-laden fluid is filtered; the improvement residing in: sealing means for establishing a sealed chamber within the module housing through which the contaminate-laden fluid is conducted externally of the processing elements; holding means for positioning the elongated processing elements within the sealed chamber in a bundled condition; spacer means for maintaining the bundled processing elements in laterally spaced relation to each other throughout within the sealed chamber to accommodate lateral withdrawal of the filtered fluid from the processing elements as a cleansed portion of the contaminate-laden fluid; and

drain means on the housing for discharging said cleansed portion of the contaminate laden fluid from the sealed chamber in response to filtration by the elongated processing elements.

The appealed claims, as represented by the above claim, are drawn to an apparatus having a housing enclosing a plurality of elongated filtering elements, wherein the improvement resides in (1) sealing means, that are external of the elongated processing elements and establish a sealed chamber through which contaminated fluid is conducted; (2) holding means, that position the elongated elements in a bundled condition within the chamber; (3) spacer means, that maintain the bundled elongated elements in laterally spaced relation to each other to accommodate lateral withdrawal of the filtered fluid from the elongated elements; and (4) drain means, on the housing, that discharge the filtered fluid from the sealed chamber in response to filtration by the elongated filter elements.

The references relied on by the examiner are:

Garcera et al. (Garcera)	5,916,440	Jun. 29, 1999
Funatsu et al. (Funatsu)	6,284,451	Sep. 4, 2001
		(filed Aug. 25, 2000)

The examiner has advanced the following grounds of rejection on appeal:

claims 2 and 3 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention;

claims 2 and 3 stand rejected under 35 U.S.C. § 102(e) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Funatsu; and

claims 2 and 3 stand rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Garcera.

Appellants state that the appealed claims "form one related group" (brief, page 3). Thus, we decide this appeal based on appealed claim 2, which is common to all of the grounds of rejection. 37 CFR § 1.192(c)(7) (2003).

We affirm the grounds of rejection based on Garcera, and we reverse the grounds of rejection under § 112, second paragraph, and based on Funatsu. Accordingly, we affirm the decision of the examiner.

Rather than reiterate the respective positions advanced by the examiner and appellants, we refer to the examiner's answer and to appellants' brief and reply brief for a complete exposition thereof.

*Opinion*

We begin our consideration of the issues in this appeal by determining the invention encompassed by the appealed claim 2, mindful that we must give the broadest reasonable interpretation to the terms thereof consistent with the written description in appellants' specification as it would be interpreted by one of ordinary skill in this art. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); *In re Donaldson Co., Inc.*, 16 F.3d 1189, 1192-95, 29 USPQ2d 1845, 1848-50 (Fed. Cir. 1994) (*in banc*); *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989).

In this respect, the examiner interprets the "sealing means" and "spacer means" clauses in appealed claim 2 to "[omit] essential structural cooperative relationships of elements, . . . amounting to a gap between the necessary structural connections" because

the phrases "... sealed chamber within the module housing through which the contaminate-laden fluid is conducted externally of the processing elements; ....to accommodate lateral withdrawal of the filtered fluid from the processing elements ..." reads [sic, read] as if the contaminate-laden fluid is circulated within the chamber that contains the processing elements, external to the processing elements, and the filtrate comes out laterally of the processing elements from the same side (within the chamber) where the contaminate laden fluid is circulating. [Answer, page 3.]

The examiner rejects claim 2 under § 112, second paragraph, on this basis (*id.*), and at the same time, takes the position that

[f]or examination, the examiner assumes the contaminated fluid is flowing internally through the processing elements along their length, and the filtrate is coming out laterally of the process elements into the chamber that contains the processing elements. [*Id.*, page 4.]

In response to appellants' argument that the language of claim 2 does not refer to "circulation" within the sealed chamber so as to preclude certain other recitation in claim 2 supported by the disclosure in the present specification" with respect to the "spacer means" and "drain means" (brief, pages 3-4), the examiner particularly points to the claim language "contaminate-laden fluid is conducted externally of the processing elements" in the "sealing means" clause, and to the language of the "spacer means" clause noted in the statement of the rejection quoted above (answer, page 6). The examiner argues that this claim language indicates that contaminate-laden fluid is circulated and at the same time, filtered fluid is withdrawn, both

“externally of the processing elements,” with the language of the “drain means” further adding to the apparent contradiction in the relative movement of the fluids within the claimed element bundling module (*id.*). Appellants, in reply, again point out that the examiner’s interpretation relies “on a non-existing circulation of fluids within the chamber which would preclude drainage therefrom” of the filtered fluid (reply brief, page 1-2).

Upon carefully considering the claim language as a whole in light of the written description in the specification, we agree with appellants. The preamble of the “Jepson” styled claim, *see* 37 CFR § 1.75(e) (2000), specifies “a module enclosing a plurality of elongated processing elements through which a contaminate-laden fluid is filtered,” which along with the disclosure at, e.g., page 1, lines 8-18, make clear that the contaminate-laden fluid is filtered by passing through the elongated processing elements, such as ultra-filtration membranes, of *known* modules. We find no disclosure in appellants’ specification which indicates that the functioning of such module in this manner is appellants’ own work. *See generally, Pentec, Inc. v. Graphic Controls Corp.*, 776 F.2d 309, 315, 227 USPQ 766, 770 (Fed. Cir. 1985); *In re Fout*, 675 F.2d 297, 299-301, 213 USPQ 532, 535-36 (CCPA 1982); *In re Ehrreich*, 590 F.2d 902, 909-10, 200 USPQ 504, 510 (CCPA 1979). Indeed, one of ordinary skill in this art would have found in the written description in appellants’ specification the teaching to seal the chamber of known modules such that the contaminate-laden fluid passes through only the elongated processing elements thereof, and not in the part of thereof which contains the filtered fluid. *See, e.g.*, pages 1-2 and 4-5, and numerals 22, 24 and 26 in FIGS. 2, 3 and 4, of the specification.

On this basis, we interpret the language of the “sealing means” clause in appealed claim 2, which is the at the root of the examiner’s claim interpretation, to read on “sealing means” that are “external of the processing elements” and “establishing a sealed chamber through which contaminated fluid is conducted.”

In view of our interpretation of the “sealing means” clause of appealed claim 2, we find that the examiner has not established a *prima facie* case that appealed claims 2 and 3 fail to comply with the provisions of § 112, second paragraph,<sup>1</sup> because the language of the claim

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<sup>1</sup> The initial burden of establishing a *prima facie* case on any ground under the second paragraph of § 112 rests with the Examiner. *See In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443,

considered as a whole as well as in view of the written description in the specification as it would be interpreted by one of ordinary skill in the art set out and circumscribes a particular area with a reasonable degree of precision and particularity. *In re Moore*, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971). Thus, we reverse the ground of rejection under 35 U.S.C. § 112, second paragraph.

Considering now the language of the “drain means” clause which is at issue with respect to the application of prior art under the appropriate provisions of §§ 102 and 103, the examiner finds that the modules disclosed in each of the applied references has an element which constitutes a “drain means” that satisfies this limitation of appealed claim 2 (answer, pages 4-5, 7 and 8), but makes no finding with respect to the interpretation of the “drain means” clause in the claim in light of the disclosure in the specification.

The subject claim language specifies the function of the “drain means” as “for discharging said cleansed portion of the contaminate laden fluid from the sealed chamber in response to filtration by the elongated processing elements,” and we find that the sole structural recitation that such means must be located “on the housing” does not define a structure which satisfies that function. Thus, the claim language falls within the requirements of § 112, sixth paragraph. *See Texas Digital Systems, Inc. v. Telegenx, Inc.*, 308 F.3d 1193, 1208, 64 USPQ2d 1812, 1822-23 (Fed. Cir 2002), and cases cited therein. Accordingly, we must construe the “means” language as limited to the “corresponding structure” disclosed in the written description in the specification and “equivalents” thereof. *Donaldson*, 16 F.3d at 1195, 29 USPQ2d at 1850. The “corresponding structure” is that “structure in the written description necessary to perform that function [citation omitted],” that is, “the specification . . . clearly links or associates that structure to the function recited in the claims.” [Citation omitted.]” *Texas Digital Systems, supra*. “[A] section 112, paragraph 6 ‘equivalent[]’ . . . [must] (1) perform the identical function and (2) be otherwise insubstantially different with respect to structure. [Citations omitted.]” *Kemco*

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1444 (Fed. Cir. 1992), *citing In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984) (“As discussed in *In re Piasecki*, the examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability.”).

*Sales, Inc. v. Control Papers Co.*, 208 F.3d 1352, 1364, 54 USPQ2d 1308, 1315-16 (Fed. Cir. 2000).

The written description in the specification contains the disclosure that “ultra-filtration processing of a contaminate laden fluid is performed within such module housing to discharge a contaminate cleansed portion of the fluid from a drain,” and “a percolation chamber from which the filtration cleansed fluid portion is drained” (page 1, lines 21-22, and page 2, lines 2-3). The written description further discloses, under “Detailed Description of Preferred Embodiments,” “[r]eferring to the drawing in detail, FIG. 1 illustrates a module 10 having an outer cylindrical housing 12 extending longitudinally between an axial inlet end 14 thereof and its other axial outlet end 16 . . . [and] separated cleansed fluid portion is discharged from a drain 18 located on the housing 12, spaced between the outlet end 16 and the inlet end 14” (page 3, line 20, to page 4, line 4). The written description discloses with respect to **FIG. 2**, that separation of water from contaminants “is performed during passage of the oily wastewater under pressure between the inlet and outlet ends 14 and 16 by . . . elongated elements 20 in the form of filter membranes” resulting in “percolation laterally within a sealed chamber so as to gravitationally collect therefrom the contaminate cleansed portion for discharge therebelow through the drain 18” (page 4, lines 5-10). In specification **FIGS. 1 and 2**, housing **12** is orientated such that round pipe drain **18** is positioned below the housing at the outlet end thereof, with gravitational collection and drain discharge of the filtered water shown in **FIG. 2**.

The structure corresponding to the “drain means” language of appealed claim 2, as linked thereto in the written description in the specification as discussed above, is round pipe drain **18** which is “on the housing” and is disclosed to perform the function of merely “discharging said cleansed portion of the contaminate laden fluid from the sealed chamber in response to filtration by the elongated processing elements,” and, it is specifically disclosed, the discharge of the cleansed water from the processing elements through the drain pipe is facilitated by “gravitation” as illustrated in the figures of the preferred embodiments. However, we find in this latter respect that one of ordinary skill in this art would have recognized that the contaminate-laden water was conducted through the elongated processing elements “under pressure,” and would thus have reasonably inferred that such “filtration” of said fluid can provide pressure to push the cleansed

water through the drain in addition to the pull of gravity, even with a pressure drop across the filtration membrane, which also constitutes “discharging” through the drain pipe “in response to filtration by the elongated processing elements.” Indeed, we determine that the term “drain” is used in the specification in its ordinary, dictionary meaning in context of “—**n.** **1.** A pipe or channel by which liquid is drawn off. . . . **3.** The action or process of draining.”<sup>2</sup>

The examiner finds with respect to the “drain means” that Garcera discloses a “drain for discharge of clean fluid (4, fig 1) as in claim 2” and that “[c]ontaminate-laden fluid is conducted through the elements and filtrate collected laterally of the elements as in claim 2 (see arrow 3 fig 1),” in contending that appealed claim 2 is thus anticipated under § 102(b) (answer, pages 5 and 8). Appellants argue that “the elongated process elements 1 as disclosed in [Garcera] do not filter fluid that is laterally withdrawn and discharged by drainage from the housing as called for by recitation in claim 2” ( brief, page 5; *see also* reply brief, page 3).

We find that Garcera discloses that “in **FIGS. 1 and 3**, a side tube **48** is secured to casing **11**” (col. 8, lines 59-60), and that in **FIG. 1**, “[e]ach membrane **1** comprises longitudinal channels **2** in which the fluid to be treated . . . circulates, the arrows **3** and **4** symbolically showing the fluid circulation” where the channels **2** carry the fluid to be treated, and “[a] casing **11** constitutes the cylindrical side wall of the module, surrounding the membranes **1**” (col. 6, lines 3-7). We further find in **FIG. 1** that arrow **3** shows the contaminate-laden fluid exiting tubular casing **11** at the axial outlet, while arrow **4** shows the treated or cleansed fluid exiting or draining through side tube **48**. We also find in **FIG. 3** that side tube **48** is orientated with respect to membranes or processing elements **1** such that the cleansed fluid can drain by gravity in addition to the pressure of the cleansed water exiting membranes or processing elements **1** during filtration which is conducted under pressure (e.g., cols. 5-7).

Thus, contrary to appellants’ arguments, we find that one of ordinary skill in this art would have found in the teachings of Garcera<sup>3</sup> that side tube **48** is positioned on the side housing

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<sup>2</sup> See generally, *The American Heritage Dictionary, Second College Edition* 423 (Boston, Houghton Mifflin Company, 1982); *Webster’s II New Riverside University Dictionary* 403 (Boston, The Riverside Publishing Company, 1984).

<sup>3</sup> It is well settled that a reference stands for all of the specific teachings thereof as well as the inferences one of ordinary skill in this art would have reasonably been expected to draw

11 between an inlet and an outlet, and while arranged on the side of the housing, nonetheless functions as a drain because of cleansed water pressure and gravity.

Accordingly, Garcera provides substantial evidence in support of our determination that side tube 48 in Garcera FIGS. 1 and 3 performs the identical function as and is insubstantially different in structure from round pipe drain 18 on housing 12 in specification FIGS. 1 and 2, and thus, side tube 48 is equivalent to round pipe drain 18 which is the disclosed structure corresponding to the “drain means” specified in appealed claim 2. Therefore, Garcera describes the claimed module enclosing a plurality of elongated processing elements as encompassed by appealed claim 1 within the meaning of 35 U.S.C. § 102(b), and thus, we affirm the rejection of appealed claims 2 and 3 on this basis. We further affirm the ground of rejection of appealed claims 2 and 3 under 35 U.S.C. § 103(a) on the same basis because it is well settled that “anticipation is the ultimate of obviousness.” See *In re Baxter Travenol Labs.*, 952 F.2d 388, 392, 21 USPQ2d 1281, 1284-85 (Fed Cir. 1991), citing *In re Fracalossi*, 681 F.2d 792, 794, 215 USPQ 569, 571 (CCPA 1982).

We cannot reach the same determinations with respect to the grounds of rejection based on Funatsu. The examiner finds that the reference discloses in FIG. 1 thereof a module with, *inter alia*, “elongated processing elements (hollow-fibers)” and “drain for discharge of clean fluid (6, fig 1) as in claim 2” and that “[c]ontaminate-laden fluid could be conducted through the elements and filtrate collected laterally of the elements as in claim 2” (answer, page 4). Appellants argue that “part (6) is a housing inlet for cells 10 as shown in FIG. 1, rather than a discharge drain as referred to by the examiner,” citing Funatsu col. 5, lines 59-67, and that “[n]o lateral withdrawal of filtered fluid is referred to or disclosed in” the reference, all as required by appealed claim 2 (brief, pages 4-5). The examiner responds that “[p]ort (6) of Funatsu *would be* a drain means if Funatsu’s apparatus is used for the cleaning of the contaminate-laden fluid as claimed by” appellants, arguing that “the function is inherent from the structure” (answer, page 7). Appellants reply that there is no basis supporting the examiner’s argument with respect

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therefrom, see *In re Fritch*, 972 F.2d 1260, 1264-65, 23 USPQ2d 1780, 1782-83 (Fed. Cir. 1992); *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968), presuming skill on the part of this person. *In re Sovish*, 769 F.2d 738, 743, 226 USPQ 771, 774 (Fed. Cir. 1985).



to the use of Funatsu's apparatus for fluid cleansing and this apparatus does not correspond to appealed claim 2 particularly in view of the "location of the drain means on the housing" (reply brief, page 2).

We find that, as pointed out by appellants, the cell culture module depicted in Funatsu **FIG. 1** is oriented such that the cells **10** are immobilized in or outside of the hollow fibers **2** in the space **5**, which have a semipermeable membrane through which oxygen and nutrients are provided to the cells **10**, and are supplied to the apparatus through cell inlet **6** formed on the top of tubular housing **1**, wherein housing **1** has an inlet **7** and a drain outlet **8** with respect to hollow fibers **2**. *See, e.g.*, col. 2, line 59, to col. 3, line 8, col. 3, lines 23-42, and col. 5, line 24, to col. 6, line 13, of Funatsu.

Based on the record, we agree with appellants. We find no evidence in support of the examiner's contention that it would have been obvious to one of ordinary skill in this art to use the apparatus of Funatsu **FIG. 1** to cleanse contaminate-laden fluid, either in the orientation shown in Funatsu **FIG. 1** or in another orientation.<sup>4</sup> Furthermore, in view of the function of cell inlet **6** as an inlet as disclosed in Funatsu, and not as a drain, and the position of cell inlet **6** on top of tubular housing **1** as oriented in Funatsu **FIG. 1**, we determine that cell inlet **6** does not perform the identical function and is substantially different in structure than round pipe drain **18**, which is the disclosed structure corresponding to the "drain means" specified in appealed claim 2, and thus, cell inlet **6** is not "equivalent" to round pipe drain **18**. *See Donaldson*, 16 F.3d at 1195-96, 29 USPQ2d at 1850-52.

Accordingly, in the absence of a *prima facie* case of anticipation and of obviousness, we reverse the grounds of rejection under 35 U.S.C. §§ 102(b) and 103(a) over Funatsu.

In summary, we have affirmed the grounds of rejection based on Garcera, and have reversed the remaining grounds of rejection.

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<sup>4</sup> *See Donaldson*, 16 F.3d at 1196, 29 USPQ2d at 1851; *see also In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1316-17 (Fed. Cir. 2000) ("Even when obviousness is based on a single prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of the reference. *See B.F. Goodrich Co. v. Aircraft Braking Sys. Corp.*, 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1318 (Fed. Cir. 1996)."); *cf. In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984).

The examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

*AFFIRMED*

Edward (Kurt)

EDWARD C. KIMLIN  
Administrative Patent Judge

Bradley R. Carris  
BRADLEY R. CARRIS

BRADLEY R. GARRIS  
Administrative Patent Judge



CHARLES F. WARREN  
Administrative Patent Judge

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